

Listing of Claims

1. (Currently Amended) An electronic system, comprising:
 - a portable host device having a connector and operable to execute user applications through an operating system; and
 - an expansion module adapted for quick-connect engagement in and disengagement from the portable device via the connector, comprising:
 - one or more peripheral devices adapted to serve different classes of functions;
 - a non-volatile memory for storing information that pertains to circuit configuring the different classes of functions in the module;
 - a re-configurable unit adapted to be circuit modified to establish physical circuit connections so as to implement functional portions within the re-configurable unit that within the module, implement a certain class of functions, and control the expansion module components to support the different classes implemented class of functions;
 - a control device adapted, in cooperation with the host device and in response to a host executing user application request, to control the circuit modification of the reconfigurable unit to provide support the different classes implemented class of functions in support of the user application request; and
 - a software algorithm adapted to instruct the control device in the circuit modification of the re-configurable unit.

2. (Currently Amended) A method of reconfiguring the functionality of a portable electronic device, comprising:

connecting an expansion module to the portable electronic device;

reading applications resident on the portable electronic device; and

upon receiving a request to activate a new function to be provided by the portable electronic device, that request being issued by a user application executing on the portable electronic device, automatically ~~circuit~~ reconfiguring physical circuit interconnections within the expansion module so as to implement functional portions thereof which control the expansion module to provide the new function requested.

3. (Previously Presented) The method of claim 2, wherein the step of automatically circuit reconfiguring comprises verifying that the request is consistent with the functions that are capable of being provided by the expansion module.

4. (Previously Presented) The method of claim 2, wherein the step of automatically circuit reconfiguring comprises selecting components within the expansion module to perform the new function requested, and deselecting components within the expansion module that are not needed to perform the function requested.

5. (Original) The method of claim 2, further comprising signaling completion of the reconfiguring.

6. (Currently Amended) The method of claim 2, wherein the step of automatically circuit reconfiguring comprises modifying an address space in memory in the expansion module that contains instructions to execute drivers within the expansion module to execute the new function requested.

7. (Currently Amended) An electronic system, comprising:

a portable host device having a connector; and

an expansion module adapted for quick-connect engagement in and disengagement from the portable device via the connector, comprising:

one or more peripheral devices adapted to serve different classes of functions;

a non-volatile memory for storing information that pertains to circuit configuring the different classes of functions in the module;

a field programmable gate array adapted to be circuit modified to establish physical circuit connections so as to implement functional portions within the re-configurable unit that within the module, implement a certain class of functions, and control the expansion module components to support the different classes implemented class of functions;

a control device adapted, in cooperation with the host device, to control the circuit modification of the field programmable gate array to provide support the different classes implemented class of functions in support of the user application request; and

a software algorithm adapted to instruct the control device in the circuit modification of the re-configurable unit.

8. (Currently Amended) The system of claim 1, wherein the re-configurable unit includes a field programmable gate array that is circuit modified by the control device to establish needed physical circuit connections to implement necessary functional portions controlling expansion module operation.

9. (Original) The system of claim 1, wherein the peripheral devices include sensors.
10. (Original) The system of claim 1, wherein the peripheral devices include signal processing elements.

11. (Currently Amended) An expansion module adapted for quick-connect engagement in and disengagement from a portable, electronic host device executing user applications through an operating system, the module comprising:

one or more peripheral devices adapted to serve different classes of functions;

a non-volatile memory for storing information that pertains to circuit configuring the different classes of functions in the module;

a re-configurable unit adapted to be circuit modified to establish physical circuit connections so as to implement functional portions within the re-configurable unit that ~~within the module, implement a certain class of functions, and control the expansion module components to support the different classes implemented class of functions;~~

a control device adapted, in cooperation with the host device and in response to a host executing user application received from the host device, to control the circuit modification of the field programmable gate array to provide support the different classes implemented class of functions in support of the user application request; and

a software algorithm adapted to instruct the control device in the circuit modification of the re-configurable unit.

12. (Currently Amended) The module of claim 11, wherein the re-configurable unit includes a field programmable gate array that is circuit modified by the control device to establish needed physical circuit connections to implement necessary functional portions controlling expansion module operation.